IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

JULIA ROBERTSON-ARMSTRONG	:	CIVIL ACTION
	:	
v.	:	
	:	
ROBINSON HELICOPTER COMPANY, INC., et al.	:	NO. 13-2810

MEMORANDUM

Bartle, J. November 19, 2015

Plaintiff Julia Robertson-Armstrong ("Robertson-Armstrong") was severely injured on July 20, 2011 when a helicopter in which she was a passenger crashed in New Jersey. She has sued Robinson Helicopter Company, Inc. ("Robinson"), the manufacturer of the helicopter, as well as Nassau Helicopters, Inc. ("Nassau"), which owned and operated it at the time of the crash.[1] Her complaint includes claims for strict liability, negligence, negligent misrepresentation and omission, and fraud against Robinson and a negligence claim

1. Roberston-Armstrong also sued three related business entities: Textron, Inc. ("Textron"); AVCO Corporation ("AVCO"); and Lycoming, a/k/a Lycoming Engines, a/k/a Lycoming Engines Operating Division of AVCO Corporation, a/k/a Textron Lycoming Reciprocating Engine Division ("Lycoming"). She alleged that Lycoming had manufactured the engine of the subject helicopter and its "fuel related components," that Lycoming was a division of AVCO, and that Textron was liable for AVCO's acts under a participation theory. On April 23, 2014 the court dismissed Robertson-Armstrong's claims against Lycoming and Textron. The parties subsequently stipulated to the dismissal of Robertson-Armstrong's claims against AVCO and Nassau's crossclaims against AVCO and Textron.

against Nassau. Robinson and Nassau subsequently filed crossclaims against one another, each asserting that the other is liable for the harm alleged.

Robinson has filed a number of pretrial motions challenging Robertson-Armstrong's experts under Daubert v. Merrel Dow Pharmaceuticals, 509 U.S. 579 (1993), and Rule 702 of the Federal Rules of Evidence. We will now consider the motion of Robinson to preclude Robertson-Armstrong's expert Dr. Sri Kumar ("Dr. Kumar") from offering design opinions at trial.

I.

The court has a "gatekeeping" function in connection with expert testimony. See Gen. Elec. Co., et al. v. Joiner, 522 U.S. 136, 142 (1997); see also Daubert, 509 U.S. at 589. Rule 702 of the Federal Rules of Evidence provides:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. As our Court of Appeals has repeatedly noted, Rule 702 embodies three requirements: qualification,

reliability, and fit. Pineda v. Ford Motor Co., 520 F.3d 237, 244 (3d Cir. 2008).

An expert is qualified if he "possess[es] specialized expertise." Schneider ex rel. Estate of Schneider v. Fried, 320 F.3d 396, 404 (3d Cir. 2003). This does not necessarily require formal credentials, as "a broad range of knowledge, skills, and training qualify an expert," and may include informal qualifications such as real-world experience. In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 741 (3d Cir. 1994). The qualification standard is a liberal one, and an expert may be sufficiently qualified under Rule 702 even if "the trial court does not deem the proposed expert to be the best qualified or because the proposed expert does not have the specialization that the court considers most appropriate." Holbrook v. Lykes Bros. S.S. Co., 80 F.3d 777, 782 (3d Cir. 1996).

To determine reliability, we focus not on the expert's conclusion but on whether that conclusion is "based on the methods and procedures of science rather than on subjective belief or unsupported speculation." Schneider, 320 F.3d at 404 (internal quotation marks omitted). Our analysis may include such factors as:

> (1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the

> technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Pineda, 520 F.3d at 247-48.

"[T]he test of reliability is flexible" and this court possesses a broad latitude in determining reliability. Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141-42 (1999). To be reliable under Daubert, a party need not prove that his or her expert's opinion is "correct." Paoli, 35 F.3d at 744. Instead:

> As long as an expert's scientific testimony rests upon good grounds, based on what is known, it should be tested by the adversary process –competing expert testimony and active cross–examination – rather than excluded from jurors' scrutiny for fear that they will not grasp its complexities or satisfactorily weigh its inadequacies.

United States v. Mitchell, 365 F.3d 215, 244 (3d Cir. 2004) (quoting Ruiz–Troche v. Pepsi Cola Bottling Co., 161 F.3d 77, 85 (1st Cir. 1998)).

As for "fit," expert testimony must also "assist the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702. Thus, to "fit," such evidence must bear some relation to the "particular disputed factual issues in the case." United States v. Downing, 753 F.2d 1224, 1237 (3d Cir. 1985). Accordingly, this factor has been

described as one of relevance. Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 591 (1993); Paoli, 35 F.3d at 745 & n.13.

II.

Robertson-Armstrong retained Dr. Kumar to provide opinions related to biomechanics and injury causation, including the role played by the design of the subject helicopter in the injuries sustained by Robertson-Armstrong as a result of the crash.

As Dr. Kumar's Curriculum Vitae reveals, he has extensive experience in the area of biomechanics. He holds a Ph.D. in biomechanical engineering and has served in a faculty position at the Department of Neurosurgery of the Medical College of Wisconsin, which is well-respected in the area of biomechanical analysis. Dr. Kumar has studied the biomechanics of the head-neck system and the thoracic-abdominal complex and the extremities, and has conducted biomechanical evaluations of vehicle restraints. He has also collaborated with the National Highway Traffic Safety Administration to develop injury criteria for crash dummies. Dr. Kumar has published more than 230 articles on the subject of biomechanics and holds three patents in that area. Further, Dr. Kumar has conducted biomechanical analyses in hundreds of accidents, including aviation accidents.

Robertson-Armstrong has submitted an affidavit of Dr. Kumar in support of her position that he should be permitted to testify. In that affidavit, Dr. Kumar describes the process

through which biomechanics experts typically evaluate injury outcome for a particular accident. To do so, Dr. Kumar states, a biomechanics expert "relies on input from the accident reconstructionist and design expert. After obtaining input from those experts, the [b]iomechanics expert correlates the case specific facts to assess the potential for injury based on laboratory test results including the dummy test, computer simulation, and crash versus injury data in the literature."

In connection with this lawsuit, Dr. Kumar prepared a report dated July 7, 2015, which he supplemented with a rebuttal report dated September 28, 2015. In his report, Dr. Kumar describes the design of the subject helicopter, focusing in particular on the seat which Robertson-Armstrong occupied at the time of the crash. He also details her injuries. He opines as to how the design of the aircraft caused them and states that injuries of that type "can be mitigated" or prevented through the use of certain alternative designs.

Dr. Kumar explains in his affidavit that the opinions expressed in his report are the result of a detailed analysis that necessitated, among other things, his review of medical records and of photographs and reports of the crash, his inspection of the subject helicopter and an undamaged exemplar helicopter, and his examination of crash tests of Robinson R22 helicopters. He further observes that he considered the findings and opinions of other

experts retained by Robertson-Armstrong in this matter, including the analysis conducted by William Carden of purportedly safer alternative design features and the analysis conducted by Colin A. Sommer ("Sommer") related to the impact velocity of the subject helicopter at the time of the crash. He states that "[i]t is typical for a biomechanics expert to rely upon accident reconstructionist input" like that provided by Sommer.

III.

Robinson concedes that Dr. Kumar is qualified as a biomechanics expert but seeks to preclude him from testifying about the subject helicopter's alleged design defects and lack of crashworthiness. According to Robinson, Dr. Kumar is not qualified to offer his opinions on those topics, and the methodology he used in reaching his opinions on those subjects is not reliable.[2] In particular, Robinson takes issue with the fact that Dr. Kumar has based his opinions in part on the opinions of Sommer, which Robinson claims are flawed.

We turn first to the question of Dr. Kumar's qualifications as an expert on the topics at issue. It is clear from Dr. Kumar's Curriculum Vitae that he is qualified with respect to biomechanics and injury causation. It is also clear that Dr. Kumar is qualified to offer his opinions about the design and

2. Robinson does not appear to challenge the "fit" of Dr. Kumar's testimony to the facts of this particular case. See Pineda, 520 F.3d at 244.

crashworthiness of the subject helicopter insofar as these factors relate to the injuries sustained by Robertson-Armstrong and to the way in which these injuries might have been mitigated through the use of an alternative design. As Dr. Kumar's report and affidavit reveal, he is experienced in the field of biomechanics. It is common practice for biomechanics experts to take design and crashworthiness factors into consideration in forming their opinions. Dr. Kumar states in his affidavit that biomechanics experts typically "evaluate[] the injury mechanism of the occupant during the accident and provide[] an explanation of why injuries occurred . . . in a given accident." This analysis cannot occur in a vacuum. It is informed by the way in which design features cause or mitigate injuries. As a professional with extensive experience in biomechanical analysis, Dr. Kumar is qualified to opine on the design features and crashworthiness of the subject helicopter and on alternative design insofar as these factors relate to the injuries sustained by Robertson-Armstrong.

We next address Robinson's contention that Dr. Kumar's opinion pertaining to the extent of Robertson-Armstrong's injuries is unreliable because it is predicated on the purportedly unreliable opinion of Sommer. We have determined that Sommer's opinion about the impact velocity of the subject helicopter is reliable. Furthermore, it is permissible for Dr. Kumar to base his opinion in part on the opinions of other experts in this matter.

See Fed. R. Evid. 703; Keller v. Feasterville Family Health Care Ctr., 557 F. Supp. 2d 671, 681 (E.D. Pa. 2008).

In addition, Robinson asserts that the findings of Sommer cited by Dr. Kumar appear nowhere in Sommer's own expert report. However, Dr. Kumar's report states that he relied both on Sommer's report itself and on conversations with Sommer. Further, to the extent that any discrepancy exists in Sommer's finding or in the velocity estimates provided by Sommer to Dr. Kumar, this discrepancy may be "tested by the adversary process" on cross-examination. See Mitchell, 365 F.3d at 244.

Robinson also challenges the reliability of Dr. Kumar's opinion that the type of injuries sustained by Robertson-Armstrong "can be mitigated" through the use of various alternative designs. It urges that this opinion is "devoid of any testing, analysis, or calculations as it relates to the impact forces in this accident." The opinion, Robinson maintains, is "nothing more than unsubstantiated speculation." We disagree. Dr. Kumar formulated the opinion in question by consulting relevant articles, reports, and design guides addressing alternative designs for the seat and restraint which Robertson-Armstrong was using at the time of the crash. He also performed impact calculations based in part upon the impact velocity estimates provided to him by Sommer. Rule 703 permits experts to base their opinions on facts or data upon which "experts in the particular field would reasonably rely . . . in

formulating an opinion." Dr. Kumar did just that when he consulted various articles and reports in formulating his opinion that safer alternative design features were available. His determination as to the availability and potential efficacy of alternative designs is reliable.

In sum, we will deny the motion of Robinson to preclude Dr. Kumar from offering design opinions.